Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

CENTRAL MACHINERY®

16 SPEED HEAVY DUTY FLOOR DRILL PRESS

Visit our website at: http://www.harborfreight.com
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ITEM 61483

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools.
Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein.
Tools required for assembly and service may not be included.

⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

General Tool Safety Warnings

⚠ WARNING

Read all safety warnings and instructions.
Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.
Save all warnings and instructions for future reference.

1. KEEP GUARDS IN PLACE and in working order.
2. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
3. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
4. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
5. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
6. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
7. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
8. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.

General Tool Safety Warnings (cont.)

Table A: RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS (120 VOLT)				
NAMEPLATE AMPERES (at full load)	**EXTENSION CORD LENGTH**			
	25′	**50′**	**100′**	**150′**
0 – 6	18	16	16	14
6.1 – 10	18	16	14	12
10.1 – 12	16	16	14	12
12.1 – 16	14	12	**Do not use.**	

9. USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table A shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
10. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
11. ALWAYS USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
12. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
13. DON'T OVERREACH. Keep proper footing and balance at all times.
14. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like.
16. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.
17. USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
18. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
19. CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
20. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
21. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

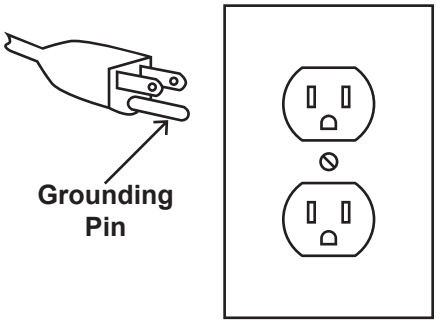
Grounding Instructions

⚠WARNING

TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION
READ AND FOLLOW THESE INSTRUCTIONS:

110-120 V~ Grounded Tools: Tools with Three Prong Plugs

1. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.
2. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician.
3. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
4. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
5. Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
6. Repair or replace damaged or worn cord immediately.



125 V~ 3-Prong Plug and Outlet (for up to 125 V~ and up to 15 A)

7. This tool is intended for use on a circuit that has an outlet that looks like the one illustrated above in **125 V~ 3-Prong Plug and Outlet**. The tool has a grounding plug that looks like the plug illustrated above in **125 V~ 3-Prong Plug and Outlet**.
8. The outlet must be properly installed and grounded in accordance with all codes and ordinances.
9. Do not use an adapter to connect this tool to a different outlet.

Drill Press Safety Warnings

For Your Own Safety Read Instruction Manual Before Operating Drill Press

1. Wear eye protection.
2. Do not wear gloves, necktie, or loose clothing.
3. Clamp workpiece or brace against Column to prevent rotation.
4. Use recommended speed for drill accessory and workpiece material.
5. The included Chuck Key is specially designed to be self-ejecting, reducing the risk of ejecting at high speed. Only use the included Chuck Key or an identical replacement key.
6. **DO NOT OPERATE WITH ANY GUARD DISABLED, DAMAGED, OR REMOVED. Moving guards must move freely and close instantly.**
7. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.
8. When servicing use only identical replacement parts.
9. Only use safety equipment that has been approved by an appropriate standards agency. Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.

Drill Press Safety Warnings (cont.)

10. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.

11. Industrial applications must follow OSHA guidelines.

12. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

13. Avoid unintentional starting. Prepare to begin work before turning on the tool.

14. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.

15. WARNING: Some dust created by power sanding, sawing, grinding, drilling, and other construction activities, contains chemicals known [to the State of California] to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
    • Lead from lead-based paints
    • Crystalline silica from bricks and cement or other masonry products
    • Arsenic and chromium from chemically treated lumber
    Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles. (California Health & Safety Code § 25249.5, *et seq.*)

16. WARNING: Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)

17. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Vibration Safety

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any medical or physical symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.

2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.

3. Use tools with the lowest vibration when there is a choice between different processes.

4. Include vibration-free periods each day of work.

5. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.

6. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.

SAVE THESE INSTRUCTIONS.

Specifications

Spindle Speeds (RPM)	220, 290, 360, 430, 500, 570, 630, 760, 830, 920, 1430, 1620, 1850, 2260, 2580, 3600
Electrical Rating	120VAC, 60Hz, 7.2A, Single-Phase
Drill Chuck Capacity	7/64″ to 5/8″ (3mm to 16mm)
Spindle Stroke	3-1/8″
Spindle Taper	MT2
Swing	13-1/2″
Column Diameter	2-3/4″
Table Size	11-3/8″ Diameter
Table Tilt	0º - 45º Left and Right
Table Rotation	360º
Overall Height	62-1/2″

US
227541

Setup - Before Use:

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

Mounting

Before assembling and using the Drill Press, secure the Base to a supporting structure.

1. Verify that the intended installation surface has no hidden utility lines before drilling or driving screws.
2. Bolt the Base to a flat, level, solid floor location capable of supporting the weight of the Drill Press and any workpieces.

Assembly

Column Assembly to Base

1. With the Base (1) on a flat level surface, bolt on the Column Support (2) using the four M10x30 Bolts (5), Flat Washers (3) and Spring Washers (4).
2. Firmly tighten the Bolts.
3. Insert the Column (7) into its Support (2) and firmly secure it with the Socket Head Cap Screws (6).

Note: It may be necessary to back the Cap Screws out beforehand, as they may protrude into the tube, preventing the Column from sliding fully into the Column Support.

Table and Support Arm to Column

1. Remove the Rack (8) from the Column (7) by loosening the Collar Set Screw (19) and removing the Collar (18). The Rack is stowed in this position only for transit purposes.
2. Gently slide the Table Support Assembly over the Column and hold it steady. With the long smooth end of the Rack uppermost, insert the Rack down through the Assembly so it meshes with the gear inside the Assembly. Locate the bottom end of the Rack in the groove formed between the Column Support and the Column.
3. Hold the assembly and Rack in this position while replacing the Collar on the Column, and ensure that the top end of the Rack is firmly engaged in the groove formed between the Collar and the Column. **IMPORTANT:** Make sure the Rack is not pinched and there is a working clearance between the Rack and Collar.
4. Firmly secure the Collar to the Column with the Collar Set Screw.
5. Tighten the Arm Locking Handle (23) to secure the Table Support Assembly to the column.
6. Attach the Table Crank (30) to the shaft protruding from the Table Support and tighten its Securing Screw (29).
7. Loosen the Arm Locking Handle and turn the Crank, testing to ensure that the Support Assembly easily travels up and down the full length of the Rack without binding, and that it also rotates freely all the way around the Column without binding.
8. IF THE SUPPORT ASSEMBLY IS TOO TIGHT:
   - Slightly loosen the Arm Locking Handle and loosen the Collar Set Screw.
   - Adjust the Collar slightly to provide a greater working clearance between the Rack and the Collar.
   - Tighten the Collar Set Screw, and test the assembly again.
9. Insert the Work Table (25) into its housing on the Support Assembly and secure with the Table Clamp (35).

Head to Column

1. It may be necessary to back the Set Screws (6) out slightly to ensure they do not protrude internally, as this would prevent the Head Assembly from sliding fully into position.
2. With assistance, raise the Head assembly and locate it on top of the Column.
3. Align the Head with the Base, and firmly secure with the Set Screws.
4. Screw the three Spindle Feed Handle Bars (10) firmly into the Spindle Feed Handle Seat (64).

Installing the Chuck

1. Loosen Arm Locking Handle (23) and slide the Table up the Column to within 6″ of the Spindle (42). Tighten the Arm Locking Handle.
2. Open the jaws of the Chuck (40) to their maximum, using the supplied Chuck Key.
3. Put a piece of scrap wood on the table to protect the Chuck nose.
4. Ensuring all parts are thoroughly clean, dry and burr free, insert the Arbor (41) firmly into the end of the Chuck with its pointed end facing away from the Chuck.
5. With the Chuck now attached, insert the pointed end of the Arbor into the end of the Spindle Shaft (42). If necessary, rotate the Arbor to ensure that the point on the end of the Arbor locates correctly with the drive slot in the Spindle Shaft.
6. Using the Spindle Feed Handles (10), lower the Spindle and press the Chuck nose hard against the piece of scrap wood on the Table to secure the Chuck into place.

Pulley Cover Knob

Attach the Pulley Cover Knob (91) to the Pulley Cover (92). Screw on tightly.

Installing the Drive Belts

1. Undo the Belt Tension Locking Knobs (14) on both sides of the Head. Turn the Belt Tension Lever (66) clockwise to bring the Motor Pulley (74) towards the Spindle Pulley (52), allowing the Belts to be easily slipped over the Pulleys.
2. Lubricate the Idler Pivot Shaft (86) and Idler Pulley (87) with light grease, and install the Pivot Shaft in its mounting between the Motor Pulley and Spindle Pulley.
3. Consult the chart inside the pulley cover (or **Figure D on page 10**), and install the Belts (53, 88) in the positions corresponding to the required spindle/drill speed.
4. Turn the Belt Tension Lever (66) counterclockwise so that tension is applied to the belts.

IMPORTANT: Tension is correct when the belts deflect by approximately 1/2″ at their centers of run when using reasonable thumb pressure.

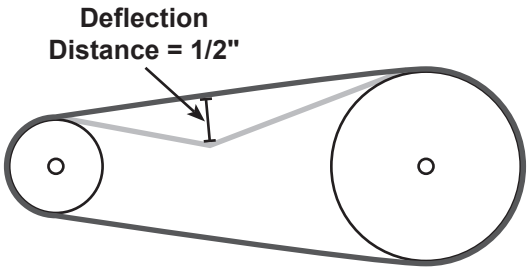
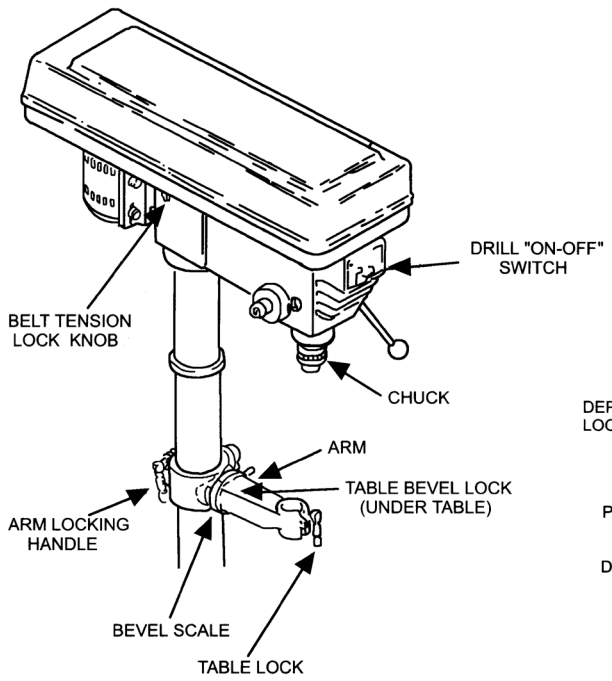
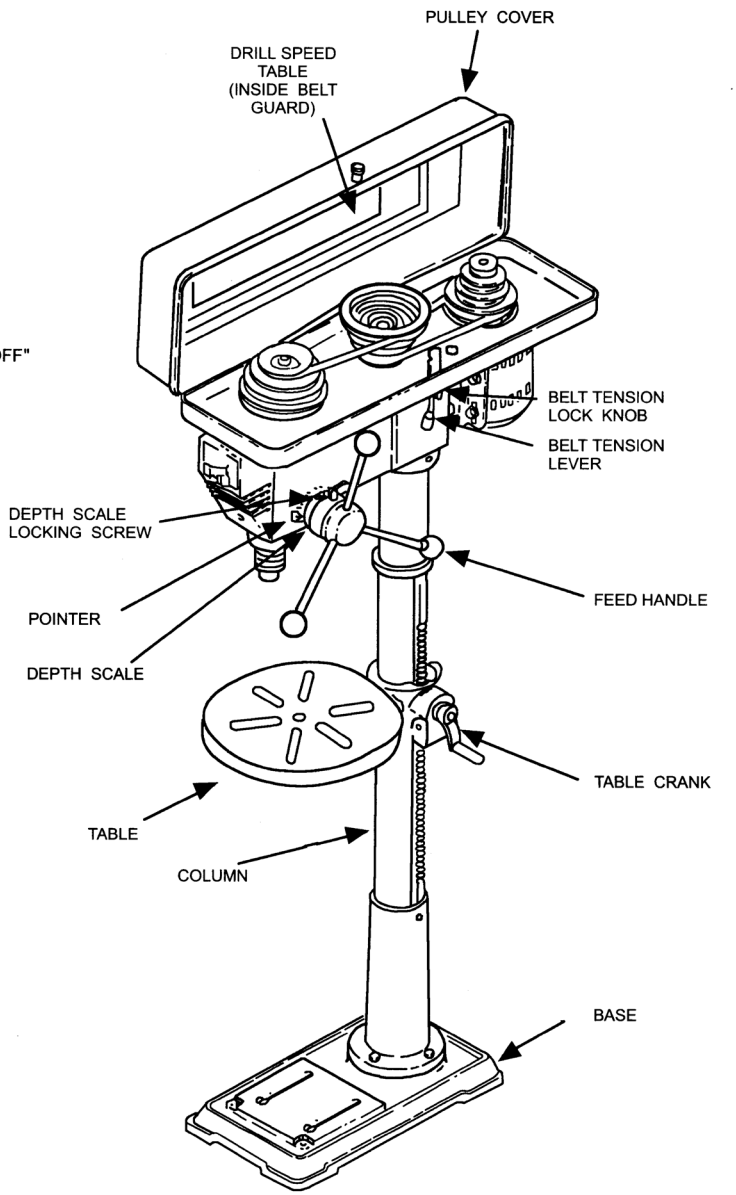


Figure A

5. Use the Belt Tension Locking Knobs to lock the Motor Pulley in this position.

Functions





Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

TO PREVENT SERIOUS INJURY: DO NOT OPERATE WITH ANY GUARD DISABLED, DAMAGED, OR REMOVED. Moving guards must move freely and close instantly.

Table Adjustment

The Table is capable of moving in four directions. See **Figure B**.

1. Raise or lower the Table by loosening the Arm Locking Handle (A) and turning the Table Crank (C): clockwise to raise the Table and counterclockwise to lower the Table.
2. Swivel the Table around the column by loosening the Arm Locking Handle. The table assembly, arm and rack (B), move as one around the column.
3. Tilt the table by loosening the Bolt (E), and tilting the Table to the required angle. A scale (F) is provided on the arm to assist in setting the required angle. For all normal operations the Table angle should be set at 0°.

   IMPORTANT: TO ENSURE THAT THE DRILL IS ENTIRELY PERPENDICULAR TO THE TABLE: Insert a piece of straight round bar in the Chuck, place a square on the Table and raise the table to bring the square up to the round bar. Adjust the Table tilt if necessary so that the Table is correctly aligned.
4. Spin the Table about its axis by loosening the Table Locking Handle (D).

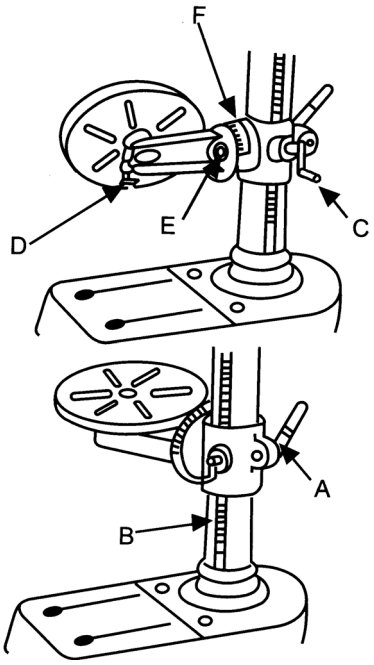


Figure B: Table Adjustments

Setting Drilling Depth

See **Figure C**.

Located around the Spindle Feed Shaft is a Depth Stop Collar (A) carrying a graduated scale. The Collar will turn around the Shaft, and can be locked in place by a Lock Knob (B).

1. With the power to the Drill Press switched OFF, use the Spindle Feed Handles to lower the drill until the bit contacts the workpiece and hold it in that position.
2. Loosen the Lock Knob and turn the Collar so that the measurement for the required hole depth is aligned with the Pointer (C).
3. Tighten the Lock Knob to lock the Collar in this position.

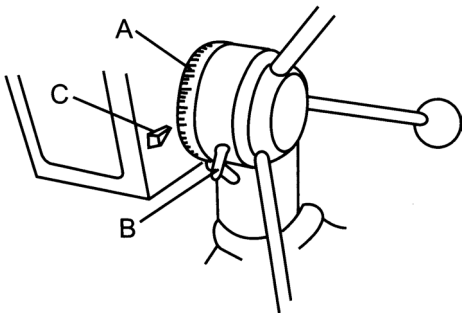


Figure C: Drill Depth Adjustment

Changing Drill Speed

See *Functions* on page 8 for illustrations.

1. **WARNING! TO PREVENT SERIOUS INJURY:** Turn off and unplug the Drill Press before changing drill speed.
2. Open the Pulley Cover.
3. Loosen the Belt Tension Lock Knobs on both sides of the Head and turn the Belt Tension Lever clockwise. This will bring the Motor Pulley towards the Spindle Pulley, removing all tension from the drive Belts.
4. Consult **Figure D** (or the chart inside the Pulley Cover) and install the Belts on the Pulleys in the positions that correspond to the required spindle/drill speed.
5. When the Belts have been correctly positioned, tighten them by turning the Belt Tension Lever counterclockwise. The tension is correct when the belts deflect by approximately 1/2″ at their centers of run when using reasonable thumb pressure. (See **Figure A on page 8**.) Lock this position in with the two Belt Tension Lock Knobs.

Note: If a belt is too long to be properly tensioned, it must be replaced.

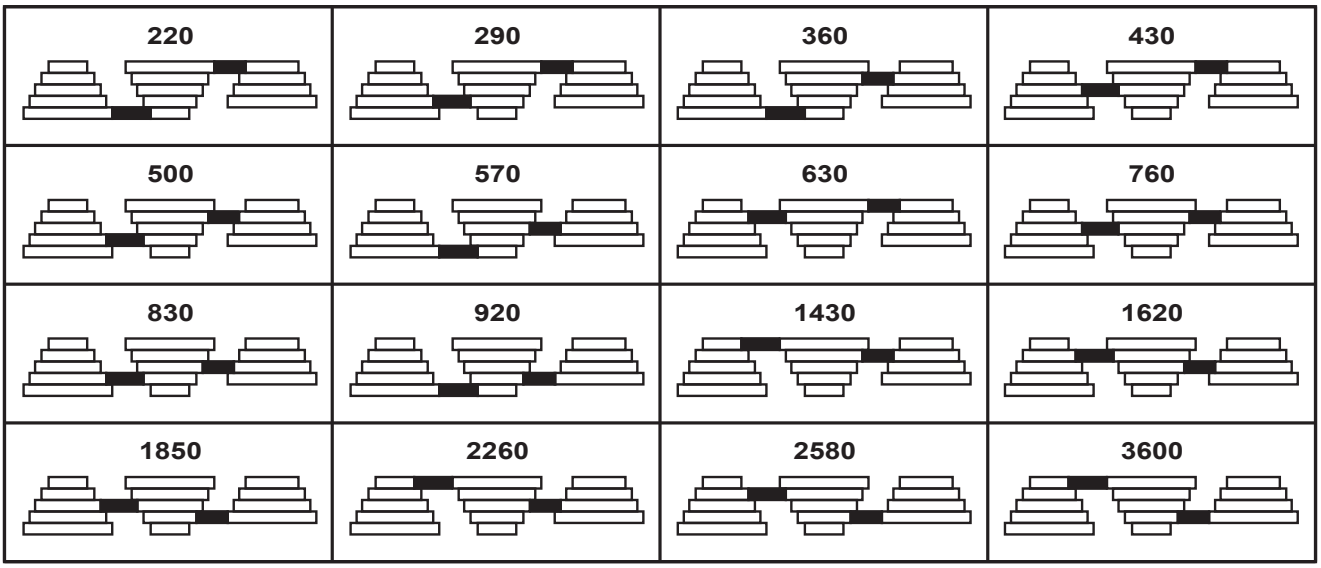


Figure D: Belt Speed Settings

The table above shows the belt arrangements for given drill speeds (A full chart is also located on the inside of the pulley cover).

Installing the Bit

CAUTION! Wear heavy-duty work gloves to provide protection when inserting and removing drill bits. Drill bits become very hot during use. Do not remove a drill bit until it has cooled.

1. Use the supplied Chuck Key to open the jaws of the drill enough to fit the drill bit.
2. Insert the drill bit approximately 1″ into the jaws of the Chuck, ensuring that the jaws do not touch the flutes of the bit.
3. Hand tighten the Chuck until the bit is held securely in place. Confirm that the bit is centered between the Chuck jaws.
4. Use the Chuck Key to tighten the Chuck.
   - Insert the tip of the Chuck Key into a hole on the side of the Chuck so that the teeth on the Key engage the gear on the Chuck. Use the Key to tighten the Chuck securely and remove the Key.

NOTICE: Use sharp bits. Dull, bent, or damaged bits will cause stress on the drill and/or break.

Workpiece and Work Area Set Up

1. Designate a work area that is clean and well-lit. The work area must not allow access by children or pets to prevent distraction and injury.
2. Route the power cord along a safe route to reach the work area without creating a tripping hazard or exposing the power cord to possible damage. The power cord must reach the work area with enough extra length to allow free movement while working.
3. Secure loose workpieces using a vise or clamps (not included) to prevent movement while working.
4. There must not be objects, such as utility lines, nearby that will present a hazard while working.
5. Set the Table height and position so that the drill travel range is sufficient for the workpiece to be drilled.
6. Set the drilling depth (see *Setting Drilling Depth* on page 9) so that the bit will not contact the table, or align the table so that the hole in its center is in line with the bit.
7. Make sure the workpiece is securely clamped. That is, held in a drill vise, or bolted to the table. **WARNING! Do not hold the workpiece with your bare hands while drilling. Serious injury may be caused if the workpiece is flung out of the operator's hand.**
8. IF THE WORKPIECE IS IRREGULARLY SHAPED and cannot be laid flat on the table, securely block and clamp it. Any tilting, twisting or shifting will result not only in a roughly drilled hole but also increases the chances of damage to the drill.
9. FOR FLAT WORK, lay the workpiece on a wooden base and clamp it down firmly against the table to prevent it from turning.
10. FOR SMALL WORKPIECES that cannot be clamped to the table, use a drill press vise (not supplied). Clamp or bolt the vise to the table.
11. WHEN DRILLING COMPLETELY THROUGH WOOD, position a piece of scrap wood between the workpiece and the table to prevent splintering on the underside of the workpiece as the bit breaks through. Brace one end of the scrap wood against the left side of the column (see **Figure E**). Securely clamp the other end of the scrap wood to the table.

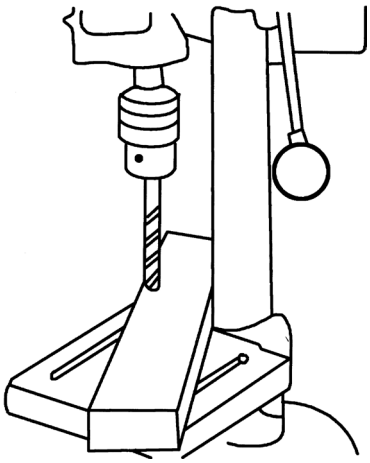


Figure E: Bracing workpiece against column

General Operating Instructions

1. Use the Spindle Feed Handles to bring the drill bit down to where the hole is to be drilled. Make minor workpiece alignment adjustments as required.
2. Make sure that the Drill Press' Power Switch is in the "Off" position, then plug the Power Cord into an electrical outlet.
3. Turn the Drill Press on.
4. Pull down on the Spindle Feed Handles and slowly drill the hole into the workpiece.

WARNING! If the drill bit grabs and spins the workpiece, do not attempt to stop the spinning with your hands. Step back, and turn the Drill Press off. Wait for the Spindle to stop turning before dislodging the workpiece.

5. To prevent accidents, turn off the tool and disconnect its power supply after use. Clean, then store the tool indoors out of children's reach.

Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:
Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

Cleaning, Maintenance, and Lubrication

1. **BEFORE EACH USE,** inspect the general condition of the tool. Check for:
   - loose hardware,
   - misalignment or binding of moving parts,
   - cracked or broken parts,
   - damaged electrical wiring, and
   - any other condition that may affect its safe operation.
2. **AFTER USE,** wipe external surfaces of the tool with clean cloth.
3. **⚠WARNING! If the supply cord of this power tool is damaged, it must be replaced only by a qualified service technician.**

Belt Inspection and Tensioning

1. Examine all belts for cracks, tears in the backing, and other damage.
2. Replace a belt if damaged, following the instructions under *Installing the Drive Belts* on page 8.

Troubleshooting

Problem	Possible Causes	Likely Solutions
Tool will not start.	1. Cord not connected. 2. No power at outlet. 3. Tool's thermal reset breaker tripped (if equipped). 4. Internal damage or wear. (Carbon brushes or switch, for example.)	1. Check that cord is plugged in. 2. Check power at outlet. If outlet is unpowered, turn off tool and check circuit breaker. If breaker is tripped, make sure circuit is right capacity for tool and circuit has no other loads. 3. Turn off tool and allow to cool. Press reset button on tool. 4. Have technician service tool.
Tool operates slowly.	Extension cord too long or wire size too small.	Eliminate use of extension cord. If an extension cord is needed, use one with the proper diameter for its length and load. See **Table A** on page 3.
Motor runs, but Spindle does not turn.	Belt(s) improperly installed or missing.	Properly install belt(s). See *Installing the Drive Belts* on page 8.
Performance decreases over time.	1. Accessory dull or damaged. 2. Carbon brushes worn or damaged. 3. Belt(s) are loose	1. Keep cutting accessories sharp. Replace as needed. 2. Have qualified technician replace brushes. 3. Properly tension belts. See *Installing the Drive Belts* on page 8.
Excessive noise or rattling.	1. Internal damage or wear. (Carbon brushes or bearings, for example.) 2. Belts too loose (slipping) or too tight (bearing damage).	1. Have technician service tool. 2. Properly tension belt(s). See *Installing the Drive Belts* on page 8.
Overheating.	1. Forcing machine to work too fast. 2. Accessory dull or damaged. 3. Blocked motor housing vents. 4. Motor being strained by long or small diameter extension cord.	1. Allow machine to work at its own rate. 2. Keep cutting accessories sharp. Replace as needed. 3. Wear ANSI-approved safety goggles and NIOSH-approved dust mask/respirator while blowing dust out of motor using compressed air. 4. Eliminate use of extension cord. If an extension cord is needed, use one with the proper diameter for its length and load. See **Table A** on page 3.

Follow all safety precautions whenever diagnosing or servicing the tool. Disconnect power supply before service.

PLEASE READ THE FOLLOWING CAREFULLY

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Record Product's Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

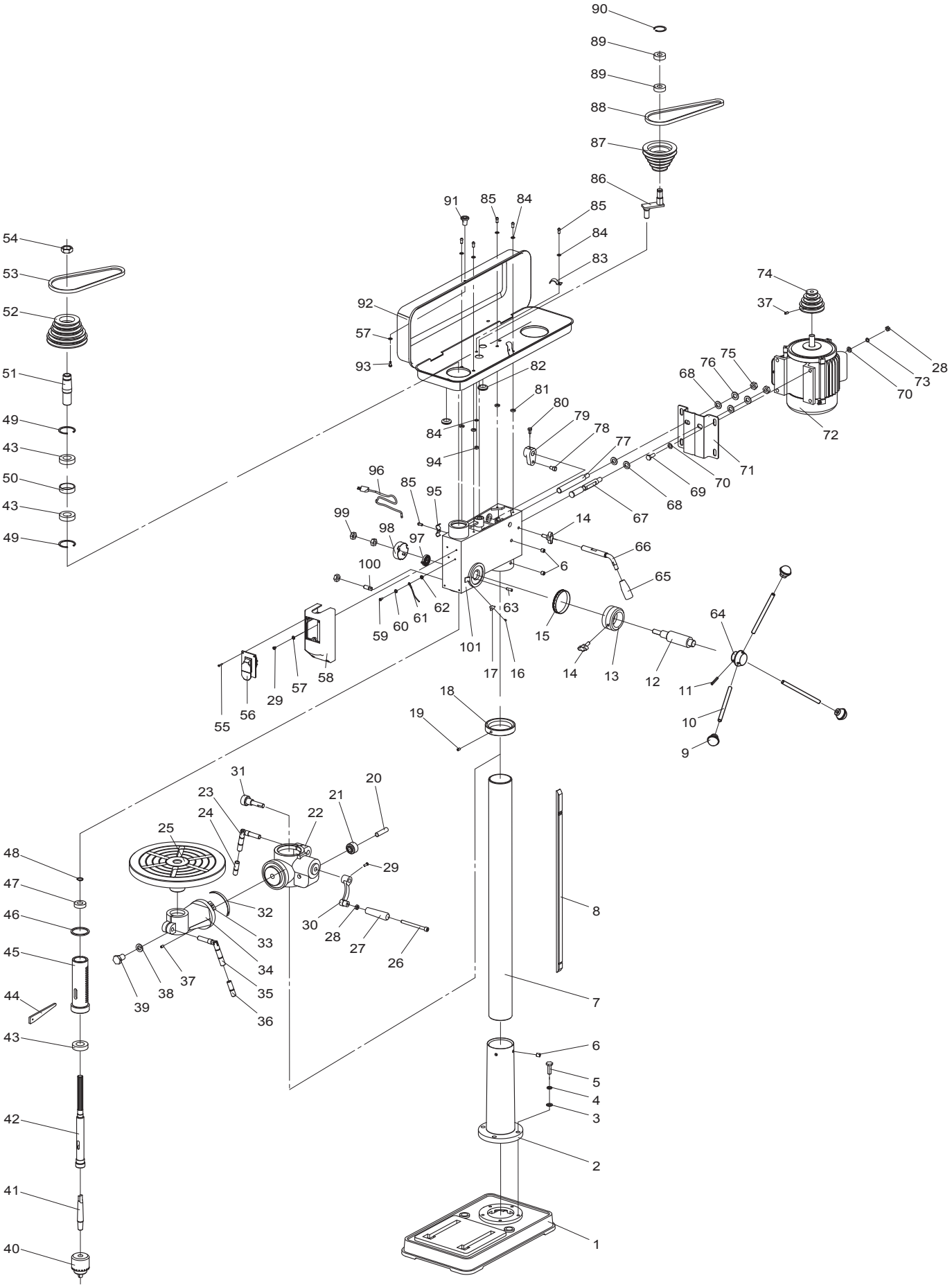
Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Parts List

Part	Description	Qty
1	Base	1
2	Column Support	1
3	Flat Washer 10	4
4	Spring Washer 10	4
5	Bolt M10×30	4
6	Socket Head Cap Screw M10×10	4
7	Column	1
8	Rack	1
9	Handle Knob	3
10	Spindle Feed Handle Bar	3
11	Spring Pin 5×30	1
12	Spindle Feed Shaft	1
13	Depth Stop Collar	1
14	Lock Knob	3
15	Scale Label	1
16	Rivet 2×3	4
17	Pointer	1
18	Collar	1
19	Collar Set Screw M8×10	1
20	Axis Pin	1
21	Helical Gear	1
22	Support	1
23	Arm Locking Handle	1
24	Handle Cover	1
25	Work Table	1
26	Socket Head Cap Screw M8×90	1
27	Handle Grip	1
28	Nut M8	2
29	Securing Screw M5×8	2
30	Table Crank	1
31	Worm Gear	1
32	Scale Label	1
33	“0 Degree” Label	1
34	Support Arm	1
35	Table Locking Handle	1
36	Handle Cover	1
37	Socket Head Cap Screw M6×10	2
38	Flat Washer 16	1
39	Bolt M16×25	1
40	Drill Chuck	1
41	Arbor	1
42	Spindle	1
43	Ball Bearing 6005	3
44	Wedge Key	1
45	Collar Bushing	1
46	Rubber Ring	1
47	Ball Bearing 6003	2
48	Retainer Ring 16	1
49	Retainer Ring 47	2
50	Bearing Space Ring	1
51	Spindle Housing	1
52	Spindle Pulley	1

Part	Description	Qty
53	V-Belt O-685	1
54	Thin Nut M24×1.5	1
55	Tapping Screw T3.5×10	3
56	Switch	1
57	Flat Washer 5	3
58	Junction Box	1
59	Screw M4×8	4
60	Spring Washer 4	2
61	Wire	2
62	Tooth Washer 4	2
63	Round Pin	1
64	Spindle Feed Handle Seat	1
65	Handle Cover	1
66	Belt Tension Lever	1
67	Jackstay (A)	1
68	Flat Washer 12	4
69	Bolt M8×25	4
70	Washer 8	8
71	Motor Base Plate	1
72	Motor	1
73	Spring Washer 8	4
74	Motor Pulley	1
75	Nut M12	2
76	Spring Washer 12	2
77	Jackstay (B)	1
78	Pull Pin	1
79	Cam	1
80	Hex Head Cap Screw M6×12	1
81	Rubber Pad	4
82	Protective Pin	2
83	Wire Clamp (A)	1
84	Flat Washer 6	1
85	Cross-Shaped Screw M6×10	1
86	Pulley Adjusting	1
87	Idler Pulley	1
88	V-Belt O-625	1
89	Ball Bearing 6202	2
90	Retainer Ring 35	1
91	Pulley Cover Knob	1
92	Pulley Cover	1
93	Cross-Shaped Screw M5×12	1
94	Nut M6	2
95	Wire Clamp (B)	1
96	Plug Cord	1
97	Tension Spring	1
98	Spring Cap	1
99	Nut M10	2
100	Screw	1
101	Head	1

Assembly Diagram



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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